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Ramona School District Installs Advanced Treatment System In San Diego County, CA

Integrated Water Services, Inc. (IWS) constructed and started-up a decentralized wastewater facility for the Ramona Unified School District (San Diego County) at the newly constructed Hanson Elementary School this past Summer. The system was constructed in a four week period and included the collection system, storage tanks, treatment system, and drain field utilizing Geoflow tubing and emitters. IWS completed the project on schedule and worked with the client in coordinating site activities to accommodate the various trades working on-site.



Hanson Elementary School — Ramona, CA

High Strength Waste Stream

The system was designed to handle the high strength waste stream projected for the school, with a peak design flow of 3,645 gallons per day.



Septic, Recirculation, and Dosing Tanks

The client elected to use an onsite advanced treatment system due to several factors: a) the high cost to extend the city sewer to the site, and b) opposition from residents to extending the sewer to their community. IWS worked closely with the county, general contractor, vendor, and engineer to assure all construction was performed to specifications. Working together with the Biosolutions, Inc. vendor's for the wastewater treatment and tanks, a successful start-up was completed and the system was activated on schedule in December 2004.

System Specifications

The following were the system components for the project:

- Two, Orenco AX-100 treatment units
- One, Xerxes 15,000 gallon septic tank
- One, Xerxes 9,000 gallon recirculation tank

- One, Xerxes 5,000 gallon dosing tank
- 19,000 ft² of Geoflow drain field
- Orenco Control system with telemetry connection

Advanced Treatment — the Preferred Solution

The 15,000 gallon septic tank retains the solids as the primary tank, while allowing the effluent wastewater to flow into the recirculation tank. Water is pumped from the recirculation tank to the two, Orenco AX-100 fabric filtration units. Once treated, a portion of the wastewater is returned to the recirculation tank, while the balance is introduced into the dosing tank. From the dosing tank, the treated wastewater is dispersed to the drip field. All aspects of the system operation are automated through a control panel adjacent to the treatment area, which is monitored continuously via a telemetry based system.



Orenco AX-100 Textile Filtration Unit



Setting 15,000 Gallon Tank at Ramona Site

The wastewater treatment equipment was incorporated into the planned landscaping and parking areas on-site, minimizing the space impact to the school facilities. The underground storage tanks were placed under the main parking areas, and treatment units were placed in a landscaped area adjacent to the parking lot.

First Commercial Advanced Treatment System Installed in Riverside County, CA

IWS achieved a milestone this Fall in being the first company to construct and start-up an on-site Advanced Treatment Unit for domestic wastewater at a commercial site in Riverside County, CA (Population 1.8 mm). The site was Waste Management's newly constructed Edom Hill Transfer Station in the Palm Springs area. The system was constructed over a two month period and included the collec-



Waste Management Edom Hill Facility

tion system, storage tanks, treatment system, and dispersal field. IWS completed the project on schedule and worked with the client in coordinating site activities to accommodate the various trades working on-site.

Historic Project for Riverside County

This project was high profile due to the nature of the facility and the fact that it was the first commercial onsite advanced treatment system installed in Riverside County. IWS worked closely with Riverside County during the construction and start-up of the wastewater system. IWS worked with the Biosolutions, Inc. vendor's for the wastewater treatment system and tanks to successfully start-up the system on schedule in December 2004.



From Left: Jeff Johnson (Riverside County Dept. of Env. Health); Peter Balas (IWS); Rob Shanks (Biosolutions); and Loren Lewis (Waste Management)

System Specifications

The following were the system specifications for the project:

- Xerxes 6,000 gallon Septic Tank
- Xerxes 2,000 gallon Dosing Tank
- 3, Orenco AX-20 Treatment Units
- 5,000 feet of Geoflow drip system
- Orenco Control System with Telemetry

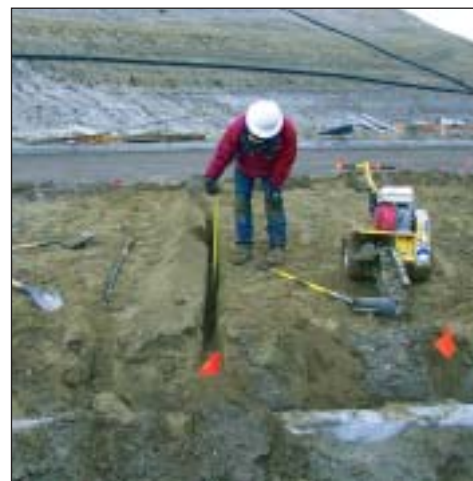
Advanced Treatment — the Preferred Solution

Due to the low percolation rates for the area and other factors, advanced



AX-20 Units and Tank Risers

onsite treatment was utilized. The septic tank retains the solids while allowing the effluent wastewater to be treated in the three Orenco AX-20 textile filtration units. Once treated, most of the wastewater is returned to the septic tank while the balance is introduced into the dosing tank. From the dosing tank, the treated wastewater is dispersed to the drip field. The sub-surface irrigation will be augmented by domestic water supply to irrigate the curbed "island" in the driveway and parking areas. All aspects of the system operation are automated through a control panel adjacent to the treatment area. The system is monitored continuously via a telemetry based system using a phone line connected to the panel.



Installing drip irrigation line

IWS Renovates CDOT Rest Areas and Replaces Composting Units

IWS provided a comprehensive renovation of two high profile rest areas along the I-70 corridor in Colorado's Glenwood Canyon, one of the most scenic sections of roadway in the country. The Colorado Department of Transportation (CDOT) project featured facility upgrades and replacement of existing composting toilets with new wastewater treatment systems at both the Bair Ranch and Hanging Lake Rest Areas. Both facilities are located in an environmentally sensitive area in a tight canyon on the Colorado River.



Setting 12,000 gallon septic tank at Hanging Lake

The main factor contributing to the renovation was the need to replace the existing composting toilets, which had exceeded their design capacity causing odors unacceptable to the public. The composting toilets were replaced with traditional flush toilets which required the construction of a new wastewater treatment system. The wastewater is treated in a primary tank, and then flows through Advanced Treatment Units before finally being disinfected through an Ultraviolet (UV) system. The treated and disinfected wastewater is then discharged to the Colorado River.



Tank and Treatment Area at Hanging Lake

The Bair Ranch facility required a 9,000 gallon septic tank, 4,000 gallon recirculation tank, 12 Orenco AX-20 treatment units, and a UV treatment system housed in a newly constructed block building. The Hanging Lake facility required a 12,000 gallon septic tank, 5,000 gallon recirculation tank, 14 Orenco AX-20 treatment units, and a UV treatment system housed in a brick building. Special considerations were taken in the design to avoid freezing and cold weather conditions.

The wastewater system at Hanging Lake was constructed adjacent to the Colorado River in a high groundwater environment. Construction required extensive landscape and grading modifications to incorporate treatment infrastructure into a highly sensitive environmental and scenic environment.



AX-20 Units at Bair Ranch

In addition to the wastewater facility, IWS completed rest area renovations including: replacement of plumbing infrastructure, tile floors, and bathroom vanities; upgrades to the HVAC; and modifications to rest area building exteriors. The contract was executed over a four month period, delivered on schedule, and placed in service in mid December.



Septic and Recirculation Tank at Bair Ranch

IWS Helps Clients Secure Project Financing

As part of our turn-key offering, IWS helps communities, developers, and municipalities secure funding for water and wastewater projects. Sources for funding are as diverse as the projects, and include: government and private sector grants, low interest government sponsored loans, commercial loans, congressional appropriations, and interim financing loans.

"There are many sources of project financing which a community, developer, or municipality may explore. Each project is different so we need to have multiple sources and approaches to serve our clients", says Dave Patton, CEO of IWS.

IWS helps educate clients on the evaluation of wastewater alternatives that meet their financial, community,

and regulatory requirements. Our conceptual wastewater solutions and economic analysis have been used for community referendums and ballot initiatives.

Private sector clients also seek creative approaches to financing their equipment and project construction. IWS recently introduced several lease finance options to a real estate developer to help finance the wastewater capital improvements for their project.

In some instances, IWS may even provide interim financing to help a client get to a critical milestone. "IWS has the ability to provide interim financing 'to bridge the gap' in some cases. Our interim financing is usually part of a larger overall financing package that will help take the project through construction and start-up", says Patton.

IWS Supports New Wastewater Infrastructure in Mexico

IWS is working with local authorities and developers at a resort community in Mexico in coordinating the design, permitting, and construction of a new 250,000 gpd wastewater treatment facility to serve a community of 5,000 residents. Development of the local tourist industry has highlighted the need for higher water quality standards and improved wastewater infrastructure for this seaside community. IWS plans to construct the system in 2005 and is currently finalizing the design and permitting phase of the project. More news on the project in our next newsletter.

About Us

INTEGRATED WATER SERVICES, INC. (IWS) provides services to municipalities, developers, communities, and businesses to help them address their water and wastewater needs. IWS leverages its extensive experience in construction, site development, and project finance to provide a range of services to its clients, with the ultimate objective of providing a water or wastewater system that meets all stakeholders' needs.

IWS partners with industry leading manufacturers and technology providers to offer our customers a solution tailored to their unique water and wastewater technical, economic and environmental needs. Partnering with multiple industry leaders ensures that IWS recommends solutions based on objectivity and the customer's best interests.

IWS project approaches include:

- Turn-key (Financing through Start-up)
- Design/Build
- Construction (Self Perform)
- Operation & Maintenance

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For more information on our services please visit our web site or contact us at the following:

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